

MANAGING RADICAL CHANGE IN ACQUISITION

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The acquisition process is critical to the survival of commercial and defense enterprises alike. Despite this critical role, however, the acquisition process is far from being healthy and robust. Notwithstanding considerable progress through legislation, acquisition reform and some process innovation, acquisition continues to plague the Defense System and constrain battlefield mobility, information, and speed. Following the lead of industry—in which many progressive firms have radically changed their acquisition process and elevated acquisition to a strategic level of importance—and Secretary Cohen's call for new approaches to leading change in a new era—radical change of unprecedented scope, pace, and importance is now required for the DoD, change that requires a quantum increase in new acquisition knowledge.

The purpose of this Special Issue is to catalyze the quality and quantity of new acquisition knowledge produced through scholarly research. In preparing for the articles published in this issue, we targeted scholars in universities and other research institutions, both within and outside the federal government, to engage their interest in defense acquisition as a primary area of research. These researchers represent a tremendous potential resource for realizing improvements in acquisition and can effect considerable leverage in terms of high-quality research through minimal direct funding. And unlike much past acquisition research, we have insisted on the same, high-quality standards maintained by the best scholarly journals, in which top researchers from leading universities normally publish their work. This approach leads to a program for producing new acquisition knowledge that is efficient as well as effective—important considerations in these times of lean Defense budgets. Although it is only a modest beginning, we have endeavored to augment the Secretary's Defense Reform Initiative—and noteworthy forward steps by the Defense Acquisition University, *Acquisition Review Quarterly*, and Naval Postgraduate School—by catalyzing renewed, increased interest in top-quality acquisition research. The seven following articles contained within the Special Issue represent the fruits of this initial effort to catalyze the prolific and systematic creation of new acquisition knowledge.

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The acquisition process is critical to the survival of commercial and defense enterprises alike. The process transforms user needs into products, services, and information that are required to satisfy those needs. In its current usage, the term *acquisition* pertains to the strategy, planning, procurement, contracting, program management, logistics, and other activities that are required to develop, produce, and support systems and other materiel to accomplish the mission of an enterprise. Although acquisition is generally described in the context of weapon systems development (i.e., in support of the defense mission), the breadth of this term indicates that it does not apply solely to the Department of Defense (DoD); rather, most enterprises in the public and private sectors alike engage in acquisition.

Despite this critical role, however, attention to the acquisition process is lacking. In DoD as well as in industry, acquisition has long been relegated to the “end of the line” in terms of executive attention, funding, innovation, training, advancement, and other key enterprise attributes. In the DoD for example, we have long heard funding and prioritization arguments based on the “tooth versus tail” metaphor. That is, if an organization is financially constrained and unable to procure sufficient assets to support all its needs and desires, then priority is given to combatants and weapons (i.e., the teeth) over procurement, program management, and even logistics. This appears to be rational because, clearly, contract administrators do not march into battle. Corporate America has long relied on this same argument as well. In the past, few corpo-

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rations would hesitate to shift discretionary spending from quality assurance to manufacturing, from customer service to marketing, from purchasing to research and development (R&D) and like prioritizations.

Now, progressive firms are shifting their emphasis and priorities. Industry discovered in the 1980s that quality represents a critical performance factor, for example, as customers increasingly demand quality products. Firms also discovered that customers increasingly demand courteous and responsive service, and that the most brilliant marketing campaign in the world is ineffective at winning back a customer who has been lost to poor service. Most important, the key message from Total Quality Management is that emphasizing quality can actually save cost and reduce cycle time. The need for change is particularly evident in R&D, the fundamental mechanism for new product and service development for the hierarchy (see Williamson, 1985 for a comparison of markets and hierarchies). The often lengthy time from basic research to new product introduction can limit a firm's agility, flexibility, and responsiveness to unforeseen changes in the environment and competitive arena (Porter, 1985). Thus, we now observe strategic networks among organizations, decreased process cost and cycle time, increased flexibility and agility, and a host of other signals that radical change has indeed occurred.

Widespread supply-chain integration, just-in-time inventory practices, virtual organizations (Davidow and Malone, 1992), electronic markets (Malone et al., 1987), mass customization (Pine et al., 1993) and other contemporary business practices have required a radical change

in the acquisition processes of progressive firms. For example, the procurement focus has shifted away from short-term transactions and more toward strategic relationships. Although price is still vitally important (as always), it is no longer necessarily more so than capability, quality, reliability, and trustworthiness. In many cases, the relationship established with a particular vendor, customer, distribution channel, or even a competitor makes the difference between being first to market with an innovation or missing the product cycle completely—perhaps while haggling over five percent of a current transaction's

purchase price. In today's era of hypercompetition (D'Aveni, 1994), global operations, and exploding information, progressive com-

panies realize that the environment has shifted abruptly and are effecting radical change where called for.

As a positive sign from the defense domain, we now find acquisition achieving an increasing level of recognition in the DoD. A new emphasis on commercial off-the-shelf (COTS) equipment and software, for example, along with renewed commercial prioritization, simplified regulations, and a preference for commercial specifications and standards exemplify this recognition (FASA, 1994; FARA, 1996). In addition, the DoD acquisition regulation is modeled on "sound business practices" (Department of Defense, 1996). We also note increasing defense partnerships with industry (e.g., Cole, 1997), less reliance

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on a shrinking defense-unique industrial base (Gansler, 1998), process reengineering (Nissen, 1997), electronic commerce, and other advanced initiatives occurring in the DoD (Bryan, 1998) with much the same intensity that we observed in industry a few years back. Indeed, realizing the importance of acquisition, the former Secretary of Defense challenged the Acquisition Workforce to effect a 50 percent reduction in cycle time to develop and field major weapon systems (Perry, 1994). This represents a call for radical change of reengineering proportions (Hammer and Champy, 1993).

Again, referring to the “tooth versus tail” metaphor, the argument now appears

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outdated. Regardless of the number and size of one’s teeth, one can run only as fast and as long as one’s tail allows. Notwithstanding our breathtaking

performance in the Gulf War, for example, armored units were restrained by the logistical chain. Our ability to strike with overwhelming force required patience and persistence as we amassed troops, supplies, and battlefield assets in nearby countries. Even our theater information systems were critically dependent on relationships with commercial vendors for equipment, software, and bandwidth in the region. With slow, bureaucratic, cumbersome, inflexible, and unresponsive procurement and logistics processes, battlefield speed is severely constrained after the first few days of intensive conflict.

Recently, the Secretary of Defense set forth an incisive, change-oriented strategic plan titled “Leading Change in a New Era” (Cohen, 1997), in which he acknowledges that acquisition (especially procurement and logistics) now limit battlefield information, mobility, and speed. Thus, in much the same way that the scope and pace of change have elevated acquisition to a level of strategic importance in industry, we see the acquisition process on the verge of becoming *strategic* to the military. Acquisition? Strategic? In the military? This represents a radical concept for the DoD, a concept that calls for concomitant revolution in defense acquisition as well as in military affairs. But how do we manage such radical organizational change of unprecedented scope, pace and importance? It is clear to the authors that simplistic, “quick-fix” approaches or recirculating old ideas under new labels will not suffice. Rather, far from business-as-usual and the status quo, substantial new acquisition knowledge is required, and is required now.

PURPOSE OF THIS SPECIAL ISSUE

The purpose of this Special Issue is to catalyze the quality and quantity of new acquisition knowledge produced through scholarly research. Although research represents only one of several important knowledge sources—others include, for example, professional practice, trial and error, and lessons learned—it is arguably the most neglected at present and the most critical for the future, particularly at this time when “outside-the-box” thinking and radical process redesign are called for. As

the principal outlet for published acquisition research, the *Acquisition Review Quarterly (ARQ)* represents an ideal venue for promoting and disseminating new acquisition knowledge. But in the same way the DoD has begun to look beyond current boundaries for new ways of operating, our purpose in this Special Issue is to reach beyond the boundaries of current *ARQ* participation. Specifically, we wish to target scholars in universities and other research institutions outside the government and engage their interest in defense acquisition as a primary area of research. As our subsequent discussion will indicate, those researchers represent a tremendous potential resource for realizing improvements in acquisition. For instance, they work according to high standards of scholarship that can help advance the state of acquisition knowledge. And they can integrate knowledge from multiple disciplines (e.g., economics, information technology, politics) to increase our understanding of and provide solutions to acquisition problems. Yet there is little evidence that these non-government resources are interested in wrestling with key acquisition issues.

No doubt one of the main reasons for this condition is that leading researchers are motivated principally to publish their work in the top academic journals of their respective disciplines. Thus, we proposed the idea, which the *ARQ* editors graciously endorsed, of this Special Issue specifically to capture the interest of research scholars from beyond the current, tiny pool of top-notch contributors. Two key features of the Special Issue were deemed necessary to accomplish this. First, we selected a “non-DoD-specific” theme or topic to attract scholars from a wide range of disciplines; hence the neutral topic “Man-

aging Radical Change.” Second, we set forth the same high research standards that leading scholars follow to publish in the top academic journals of the land. Of course, publicizing the Special Issue project beyond *ARQ*’s current boundaries was also necessary to accomplish our goal. Along with extensive dissemination of the “Call for Papers,” we actively solicited more than 1,000 scholars to submit manuscripts to the Special Issue. To enforce high standards of scholarship, we recruited many others to serve as journal referees. In summary, we hope these steps will enable the Special Issue to reach a much wider academic audience than the customary *ARQ* readership.

In particular, we hope it will engage top-flight researchers who previously may have

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seen little interest in acquisition research and publication, particularly defense acquisition. But we should make it plain that our intent in this Special Issue is not to “reinvent” *ARQ* as a journal for non-government academics. We see no reason why the journal should not remain, as then-Defense Acquisition Executive John Deutch put it in his introduction to *ARQ*’s inaugural issue, the premier acquisition publication within the government

...to integrate the professional interests of the varied and diverse acquisition career fields, to infuse senior managers with a sense of community and common purpose, and to provide a forum for scholarly debate....(Deutch 1994, 4; emphasis added).

We do, however, assert and will argue that it is this last component of Mr. Deutch's vision—the aspect of *scholarship*—that is most lacking in defense acquisition research, and subsequently in *ARQ*. Hence, we seek in this Special Issue to help make *ARQ* all that its founders envisioned it to be.

IMPLICATIONS OF RADICAL CHANGE FOR ACQUISITION RESEARCH

As we approach the 21st century, we find ourselves facing a new military environment (e.g., expanding mission requirements, declining defense funds, absence of a monolithic superpower threat); one which calls for new acquisition processes. The nature, scope, and pace of change required to effectively transform these acquisition processes imply that new knowledge will be required. Change of such magnitude and speed are unprecedented

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within the defense acquisition system; hence leaders cannot simply reuse old ideas and techniques. Rather, these new processes require new knowledge—

theoretical knowledge to guide high-level policy—and decision-making; applied knowledge to support transition and execution in the new acquisition environment; and reliable, generalizable, cumulative knowledge to leverage problem solutions across many defense programs and avoid redundancy or duplication. New

acquisition knowledge such as this calls for research, because the researcher's primary motivation is knowledge creation (discovery research).

Further, researchers have a unique ability to generalize from experiences. They build cumulatively upon the work of others and employ rigorous methods to ensure high validity and reliability of their results. In his classic work, Kuhn (1970) refers to this invaluable work as "normal science," or the cumulative accretion of knowledge by researchers within an accepted paradigm (e.g., Newtonian physics). But researchers also perform what Kuhn calls "revolutionary science," as exemplified by the "paradigm shifts" from Newtonian to Einsteinian physics, or from Ptolemaic to Copernican astronomy. It is next to impossible to achieve paradigm shift without research of a relatively fundamental, loosely applied nature, and absolutely inconceivable to attempt such a shift through incremental changes in acquisition practice alone; that is, without research.

Indeed, only research that stretches the boundaries of current knowledge can be used to leverage solutions across entire *classes* of problems (e.g., through new theory) and to adapt effective solutions induced from one process or program to many others. And academics are trained to design experiments and employ rigorous research methods that isolate effects and minimize the cost of knowledge creation. Such research requires careful planning and preparation and is time-consuming. But it minimizes exposure to failure from trial and error (e.g., as with professional practice, on-the-job training, lessons learned, and so on) and maximizes the impact and dependability of results per

unit cost. Thus, academic research is both efficient and effective at knowledge creation. By building on the cumulative work of others, researchers are able to avoid the redundancy, duplication, and waste that plagues many current acquisition reform efforts in practice. Of course, research also feeds education, training, consulting and, ultimately, professional practice itself, as new knowledge creation (i.e., research) sits at the top of the knowledge hierarchy.

We certainly do not wish to suggest that the acquisition domain has been entirely devoid of research in the past. Scholars from many disciplines write on topics that, while not “acquisition-specific,” are central to acquisition. Aaron Wildavsky’s work (1969) in budgeting and policy analysis is but one example. Acquisition even has a few of its own distinguished scholars, probably the most well-known of whom is J. Ronald Fox (1974; Fox and Field, 1988). Nor do we suggest that, institutionally, the DoD has completely neglected acquisition research. Past attempts to enhance acquisition research include establishment of the Army Procurement Research Office in 1969, the Procurement Research Coordinating Committee in 1971, the Federal Acquisition Research Symposia in 1972, the Air Force Business Research Management Center in 1973, the Federal Acquisition Institute and the Naval Center for Acquisition Research in 1977 (Office of Management and Budget, 1980). Further, we recognize that others before us have documented issues of acquisition research methods, sources, products, quality, and scholarly rigor (Strayer and Lockwood, 1975; Martin *et al.*, 1978), as well as the potential benefits to DoD of the contributions of

university researchers (Strayer and Lockwood, 1975; Abellera, 1993).

These points notwithstanding, acquisition research remains a marginalized activity. The percentage of non-government academics—

most of whom do not require external research funding—working on defense acquisition research topics remains relatively low.

The top minds employed by leading research institutions simply pay negligible attention to critical problems of defense acquisition. We may attribute this in part to our society’s historical tendency to draw distinctions between military and civilian matters, and to the separate identity of the military created by its unique role and ethic. These can lead to an ignorance—perhaps even a distrust or fear—of military matters among non-government scholars (Jefferies, 1977). At the very least, such perceptions indicate to scholars that defense is “different.”

Exacerbating this situation is that much of the acquisition research currently performed within DoD tends to be applied research and lacks rigor. This is not to imply that applied research is less valuable than basic or exploratory work, but research is governed by a well-understood maxim: The more applied the work, the more narrow the benefits of its results. By contrast, the more fundamental the work, the wider the coverage of benefits.

Further, unless research is conducted with the kind of rigor demanded by top academic journals, the results risk

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duplication with previous efforts (e.g., if not guided by a thorough literature review), confounding of causal effects (e.g., not being able to assess a particular result to decisions made or actions taken), non-generalizability (e.g., results that apply only to the specific case, process, program, or system studied) and other threats to validity (e.g., rival hypotheses, concept invalidity, unreliability; see Campbell and Stanley, 1973; Yin, 1994). Research that tends to be applied and which is conducted with little rigor is classified as “1–1” and “2–2” work using the research framework depicted in Figure 1 (Acquisition Group, 1997).

Briefly, on the horizontal axis we have the fundamentalism or “basic-ness” of the research, which corresponds roughly to the standard research categories used in the DoD—management and support, engineering development, advanced development, exploratory research, and basic research (see Fox, 1974; p. 22). As depicted by the five-point scale for this axis, work toward the extreme end of the scale characterizes research of a more fundamental and general nature, which seeks to solve broad classes of problems in a domain of investigation. As research moves toward the origin along this dimension (i.e., becomes increasingly applied), the associ-

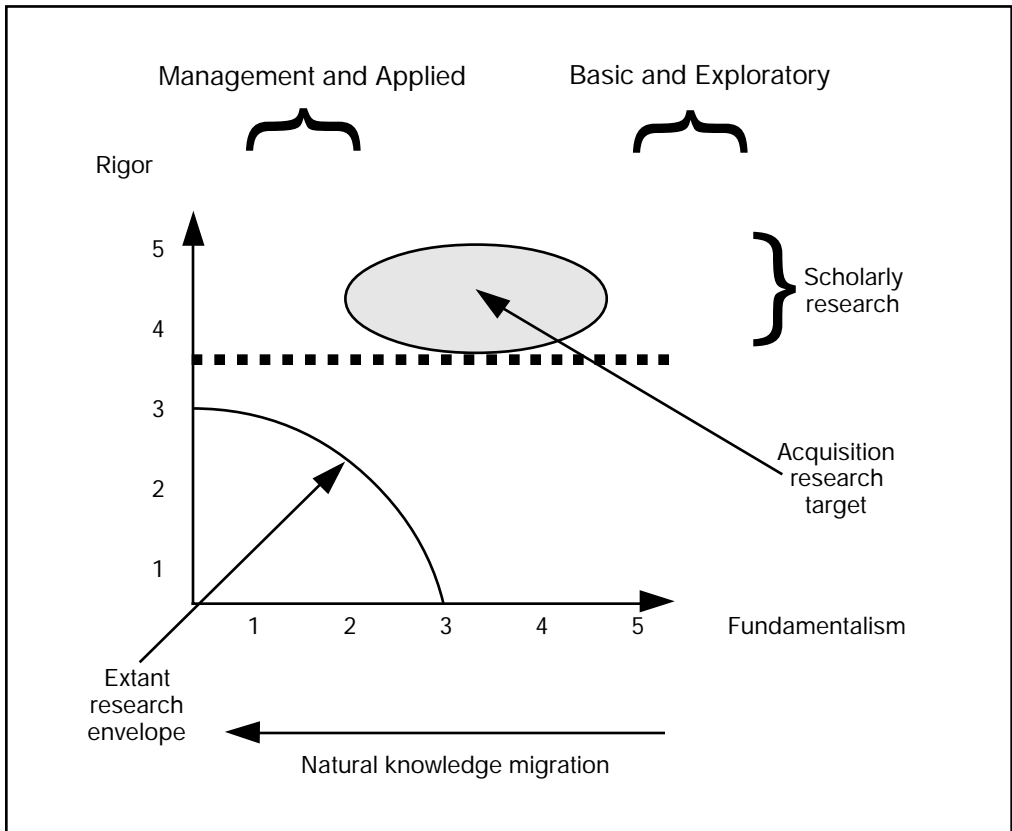


Figure 1. Acquisition Research Space

ated research takes on a narrower, more specific, shorter-term character. This helps to depict the natural migration of research from the basic and exploratory development of new knowledge toward management and applied work as research in an area matures. This dynamic pattern also highlights the need for systematic introduction of new knowledge and ideas—that *derive* from more fundamental investigations—through applied research. Indeed, without such fundamental (e.g., basic, exploratory, developmental) research, a program based solely on applied work will eventually stagnate and regress into a pattern of recirculation. In fact, a number of scholars perceive this pathological pattern existing in the acquisition domain today (Williams and Arvis, 1985).

Returning to the research space diagrammed in Figure 1, the ordinate is used to depict the methodological rigor associated with research (in any category, basic or applied). This five-point scale is used to classify the increasing use of high-confidence research methods that leave decreasing margin for refutation of the results. For example, work at level 1 (i.e., lowest level of rigor) may involve an investigator who is not even objectively detached from the work being studied (e.g., a knowledge worker who merely reports the results of his or her acquisition work). At level 2, an *independent* investigator is at least in a position to objectively observe and describe some acquisition phenomenon of interest. At level 3, this independent investigator conducts a thorough *literature review* in a particular area, in order to avoid duplicating previous results and to focus on the kinds of high-payoff research targets and topics that can only be identified through an

understanding of, and appreciation for previous work in a research area. At level 4, the investigator ensures *generalizability* of the results by employing a well-founded research design (e.g., multiple case study, factorial, stratified survey). At level 5, the researcher may even employ experimental (or quasi-experimental) methods—like those stressed in the physical sciences—in order to promote the highest levels of confidence in the results.

Two main points emerge from this diagram. First, the majority of extant research in the acquisition domain would be classified near the origin of this research space, as depicted by the “extant research envelope” in Figure 1. This tends to represent just POK (plain old knowledge) work and specialized consulting more than what most academics would even consider to constitute “research,” and it suffers from high refutability and lack of generalization. Although the contribution of such work is positive, it is minimal in that it tends to address only one specific problem at a time, is often redundant

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with previous or parallel work, and offers results confounded by poor methodology. This arguably represents a suboptimal allocation of scarce research resources. Second, any acquisition research—whether basic or applied—needs to be scholarly to overcome the refutability and generalization problems from above. These points are used to establish the acquisition target

research area depicted above the horizontal, “scholarly research” line in the figure.

The discussion intimates that the more fundamental the research and the higher the rigor of its methods, the greater the leverage effected to solve broad classes of problems that result in an efficient expenditure of funds and address the concerns of the many over the problems of the few. To accomplish such research, the best minds, tools, and methods must be applied to DoD acquisition problems. Many of these are currently engaged in research that is not specific to DoD, but which is applicable or can be adapted to DoD, such as commercially oriented work. Large corporations, like DoD, have

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to acquire materiel and supplies in the face of financial constraints, schedule deadlines, global logistics, and uncertain planning horizons. It is conceivable that a robust research program can reach out to top researchers

with a commercial orientation and help them adapt their current, fundamental, and scholarly (i.e., “4-4” and “5-5”) work to defense acquisition topics. It is equally conceivable that defense acquisition executives and practitioners can learn from commercial practice as well. Indeed, if we in acquisition want to “do business more like business,” perhaps we should be tapping into research that is oriented toward the more general business problems.

That is, we should do research more like researchers.

NEW DIRECTIONS

Regarding new directions in acquisition research, we note three recent efforts: 1) the Defense Acquisition University (DAU) acquisition research thrust, 2) the *Acquisition Research Quarterly* publication as a refereed journal, and 3) the Naval Postgraduate School (NPS) program of acquisition research. We briefly outline each of these efforts in turn and discuss an approach toward their integration.

DAU research. In addition to training and education, the DAU is also chartered to conduct acquisition policy research. For the past few years, the Acquisition Research Coordinating Committee (ARCC)—represented by each of the dozen or so DAU consortium schools—has been working to define and initiate a program of acquisition research. The DAU Board of Visitors is actively pushing to establish an external research program to include many of the same kinds of world-class research institutions noted earlier as needed for the development of new knowledge in the acquisition domain. Indeed, the DAU is outlining such an external acquisition research program at the time of this writing. The emergent DAU program is clearly consistent with many of the needs and approaches articulated through this article.

ARQ publication. The *ARQ* is a relatively new journal, which was established in part to fill an important gap in the publication of acquisition research. As a refereed publication, the *ARQ* has put into place the necessary infrastructure,

policies, and procedures that are required to ensure high standards and attract leading academics and other researchers. Because publication continues to represent one of the primary objectives of the academic research community, the existence of this outlet for *acquisition* research represents a necessary condition for the kinds of new knowledge creation called for in this article. Publication of this Special Issue indicates a lucid focus on the current state of research in the acquisition domain.

NPS acquisition research program. Faculty from the NPS Acquisition Group have been pursuing their individual research agendas for some time, but they recently outlined and composed a five-year program of acquisition research to integrate the disparate efforts (Acquisition Group, 1997). Focused on the integration of acquisition reform and process innovation, this research program is, we believe, in line with the kinds of new knowledge needs identified earlier. The NPS agenda is also entirely consistent with the emphasis of the DAU external research program, in that it too stresses collaboration with top researchers from leading, non-government universities and institutions around the world. NPS is recognized as a peer research institution of these leading universities. Yet its faculty provide a unique understanding of the DoD, along with the ability to integrate and adapt non-DoD-specific research to address problems with relevance to defense. In essence, this is how the Special Issue came to be.

Integration. Clearly, some time will be required to integrate these three efforts, but the time to start is now. Given the lag between research ideas and results, it will probably take several years to establish a robust, interdisciplinary, multi-institutional

program of acquisition research that attracts the best work of the best people. But once we encourage the top minds to begin working on acquisition problems—priming the pumps, by analogy—we can begin to reap the benefits of scholarly research, and then continue year after year. Further, once we interest university researchers in working on these problems—and find leading journals publishing their results—we

will have catalyzed a broad, multidisciplinary research program that requires little in the way of recurring funding. By catalyzing such a research reaction, we see the opportunity to leverage a

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relatively small funding level into multiplicative levels of effort in the university system. For example, an acquisition research study (Abellera, 1993) found that 95 percent of university-conducted acquisition research was *not funded* directly by the DoD; rather, of every 20 studies conducted, 19 were funded by the research institutions themselves. This characterizes the central advantage of *catalyzing* a program of external acquisition research, as opposed to funding one directly (i.e., 20:1 leverage of funded results).

Specifically, most leading universities pay their top researchers a salary and do not require outside funding for them. The researchers’ interests accordingly focus on publishing their results in leading journals. Even a small investment in such academics

can give them incentives to conduct research on acquisition topics yet still publish in leading journals. In many cases, these researchers can easily adapt their work to defense-related topics. For example, General Motors has a supply chain to manage, Intel is concerned with technological infrastructure, AT&T has global communications concerns, WalMart must manage efficient logistics, Microsoft is principally composed of knowledge workers and knowledge capital, and so forth. Our challenge is to assist researchers with the adaptation of commercial acquisition knowledge such as this to the defense domain. Through such assistance we can further leverage previous work to apply across a broad class of military problems, systems, and applications.

In fact, we actively seek out top researchers who understand DoD, but who are not constrained by this understanding.

We are interested in researchers at lead-

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ing universities who can conduct first-class research on DoD acquisition topics, *and* publish their results in top-tier academic journals. Unfortunately, to date we have identi-

fied surprisingly few such people. Yet we did in fact receive a number of excellent manuscripts in response to our "Call for Papers," and we actively worked with authors from leading universities—most of whom were somewhat unfamiliar with the defense acquisition world—to adapt their work to acquisition-specific topics. Indeed,

the number of manuscripts received was sufficient to discard many papers that failed to meet our high standards for this Special Issue on "Managing Radical Change."

EDITORIAL PERSPECTIVE ON THE SPECIAL ISSUE

To attract research scholars, we set for the Special Issue certain standards that were consistent with those of top-flight academic journals. With regard to manuscript content, we generally sought theoretical and empirical work that would advance the understanding and explanation of acquisition, as it is broadly defined. With regard to procedure, we employed a rigorous, double-blind review process. We specifically recruited reviewers who themselves have published research in scholarly journals. Thus, we were able early on in the process to eliminate from consideration several submissions that represented work of the "1-1" or "2-2" classes alluded to earlier. Most of the articles contained herein underwent at least three revisions, which is testimony to the contributions and thoroughness of our referees (and also to the patience of the authors!).

A large portion of our work as editors entailed negotiating and enforcing the Special Issue theme of "Managing Radical Change," in addition to our demand for relevance to defense acquisition. As editors, we had little interest in manuscripts that were either DoD-myopic or in no way applicable to DoD. Nor did we have interest in submissions that were unrelated to the contemporary environment of radical change. But of course few scholars have done work that spans these

research contexts. As a consequence, much of our substantive editorial work consisted of suggesting conceptual avenues that authors could pursue to relate radical change to acquisition and vice versa; that is, the very kind of assistance with defense-adaptation described earlier.

In reviewing the fruits of this roughly nine-month project, we are satisfied. In response to both the “Call for Papers” and solicitations through our academic networks, we received manuscripts from researchers at seven different colleges and universities, as well as a couple of submissions from practitioners. A diversity of scholars from several different academic institutions served as reviewers. All told, more than a dozen institutions are represented in some way in the Special Issue. The great majority of our participants had little if any prior exposure specifically to defense acquisition research; fewer still had knowledge of *ARQ*. Thus, we believe the Special Issue has been successful, even if it has served only as a “consciousness-raising” vehicle for those involved.

Of course, the works of the Special Issue authors represent significantly more substantive contributions. The seven articles that passed the review process span a diversity of academic disciplines, yet all bring knowledge and research to bear on acquisition issues and on the theme of “Managing Radical Change.” Thus, we do not intend the order in which the articles appear to represent any gradation in merit. The order simply reflects our collective opinion as to which articles fit best together and provide the most sensible conceptual flow.

The first three papers deal with “people” aspects of radical change and acquisition. Professor Nancy Roberts leads

off, and early in her article she provides a conceptual framework for understanding radical change, which serves as a useful introductory context for the entire Special Issue. Professor Roberts then proceeds to investigate one specific way that radical change can occur—by entrepreneurial design—and its implications for reform of defense acquisition processes.

“The seven articles that passed the review process span a diversity of academic disciplines, yet all bring knowledge and research to bear on acquisition issues and on the theme of “Managing Radical Change.”

In the next article, the focus shifts from entrepreneurship to leadership. Kathleen Reardon, Kevin Reardon, and Alan Rowe also provide a useful model of radical change, this one in terms of the stages of its occurrence. Their analysis integrates leadership concepts and their own empirical work on leadership styles to develop an understanding of which particular style or styles may be most appropriate and effective at each of these various stages of change.

In the third article, we move from the personal to the interpersonal. Susan Hocevar and Walter Owen place integrated product teams (IPTs) in defense acquisition within the frame of the rich management theory on teaming. Using the Navy’s F/A-18 program to illustrate the implementation of recent IPT policy initiatives, they identify specific ways in which theory can inform both the policy and practice of teaming in acquisition organizations.

The next three articles deal with technology and techniques associated with

radical change in acquisition. Judith Gebauer, Carrie Beam and Arie Segev begin this set by addressing what is arguably the central feature of technological change in contemporary society—the Internet. Their article on purchasing via the Internet uses empirical results to document current practices, examine emerging trends, and assess their possible implications for the future in defense acquisition.

Walter Scacchi and Barry Boehm follow with perhaps the most conceptually radical paper in the Special Issue. Drs. Scacchi and Boehm propose a framework for virtual systems acquisition for DoD software-intensive systems, arguing that such an approach avoids many of the usual

"We had hoped to attract many manuscript submissions from academic researchers as a result of the 'Call for Papers,'"

challenges and obstacles to successful development of these systems. They also explore some of the transitional issues that might be en-

countered by DoD in moving toward such an approach.

In the next article, Professor Gregory Hildebrandt notes that, despite the need for radical change of unprecedented scope, pace, and importance, one cannot ignore the inescapable laws of economics when establishing policy. Writing from an economics-in-contracting perspective, Professor Hildebrandt draws from well-established DoD performance-incentives policy and models to demonstrate the applicability and utility of such incentives in the contemporary acquisition environment.

The editors agreed that Dr. Lauren Holland's article should close our Special

Issue, which acknowledges the paper's special message. Dr. Holland reminds us that, despite the environment of and calls for radical change, acquisition in the United States occurs in a distinctly political context. In her article she integrates two of the prevailing explanations of why acquisition reform has eluded us, and she argues that substantive change can occur only to the extent that we recognize, and perhaps even embrace, the fundamentally democratic aspects of our acquisition environment.

CLOSING COMMENTS

A quick "content analysis" of Special Issue participants is appropriate. We had hoped to attract many manuscript submissions from academic researchers as a result of the "Call for Papers," which appeared in numerous scholarly journals in a wide variety of disciplines. Indeed, we wondered whether we could muster sufficient resources in terms of reviewers and editorial time to handle what we hoped would be an onslaught of manuscripts submitted. But the fact is, response via the "Call for Papers" was underwhelming. Two of these submissions were from acquisition practitioners, who most probably read the call in *ARQ*. Further, of the seven accepted papers, only one originated in response to the call. (We were informed that the authors had seen the call in an issue of *Academy of Management Review*.)

Three of the seven accepted articles were written by colleagues at the Naval Postgraduate School. The others were written by colleagues at other universities with whom we had worked in the past or whose work was familiar to us.

Thus, each of the six accepted papers was written in response to a personal contact and solicitation by one of the editors, not in response to the call for papers.

These findings reinforce our earlier comments about the “state of the discipline” regarding defense acquisition. While we can’t say with confidence there is a dearth of researchers concerned about acquisition in academe, it certainly appears that there are very few who are interested in publishing in *ARQ*. The authors whose work appears herein represent a small portion of what is no doubt a vast, untapped pool of potential research resources. Yet, for the most part, these scholars had to be engaged to participate in the Special Issue on an informal, personal, and *ad hoc* basis. There simply exists no effective formalized mechanism for bringing their work to bear in the realm of defense acquisition.

We hope the Special Issue can help make this mechanism a reality. Certainly the advent of *ARQ* and the institution of DAU’s Acquisition Research Coordinating Committee several years ago were

appropriate and necessary first steps. We believe DAU’s recent initiatives to energize and fund external research efforts hold much promise over the long term. We encourage others to join us as we continue to seek out new ideas on how closer linkages between DoD acquisition and academe may be developed and institutionalized.

In closing, we want to thank our friends and colleagues who participated in this Special Issue project. We gratefully acknowledge our reviewers, whose names are listed below, and applaud their hard work and intellectual diligence in helping to make each paper the best that it could possibly be. We also warmly thank Dr. Jim Price for his continual enthusiastic support for our work, as well as the members of his staff, particularly Mr. Greg Caruth, Ms. Debbie Gonzalez, and Ms. Norene Blanch. Last, but certainly not least, we thank all the authors who submitted manuscripts; without them, the rest of us would have had nothing to review, edit, or publish.

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